IN THE CLAIMS

Please amend the claims as follows:

1 (Previously Presented). An optical device comprising:

a plurality of high index layers comprising high index degenerately doped materials;

a plurality of low index layers comprising high thermal and electrically conductive materials; and

a mirror structure having alternating layers of said plurality of high index layers and said plurality of low index layers having a relationship

$$E_{g,l} > E_{g,h} > {}^{hc}\!/_{\lambda}$$

where $E_{g,h}$ is the band gap of a high index material used in said high index layers, $E_{g,l}$ is the band gap of a low index material used in said low index layers, λ is wavelength of light of interest, h is Plank constant, and c is the speed of light so that electricity and heat is conducted through said optical device, wherein the index difference between said plurality of high index layers and plurality of low index layers is greater than 0.3.

2 (Canceled).

3(Previously Presented). The optical device of claim 2, wherein the said plurality of low index layers are Indium Tin Oxides.

4 (Previously Presented). The optical device of claim 2, wherein said plurality of low index layers are doped diamonds.

5 (Previously Presented). The optical device of claim 2, wherein said plurality of high index layer are doped silicon.

6 (Original). The optical device of claim 2, wherein said plurality of low index layers possess wide band gaps.

7 (Original). The optical device of claim 6, wherein said wide band gaps ensure that the loss in said optical device will be due to scattering off carriers.

8 (Original). The optical device of claim 6, wherein said low index layers exhibit low absorption losses.

9 (Currently Amended). The optical device of claim 1, wherein said alternating layers ~~form~~ having tunneling junctions between said plurality of high index layer and said low index layers.

10 (Original). The optical device of claim 2, wherein said plurality of high index layers result in large reflectivity over a wide frequency bandwidth.

11 (Currently Amended). The optical device of claim 1, wherein said optical device is ~~fabricated~~ defined by sputtering said alternating layers.

12 (Currently Amended). The optical device of claim 1, wherein said optical device is ~~fabricated~~ defined by bonding.

13 (Currently Amended). The optical device of claim 1, wherein said optical device is ~~fabricated~~ defined by utilizing smart cut technique.

14 (Currently Amended). The optical device of claim 1, wherein said optical device is ~~fabricated~~ defined by utilizing polishing technique.

15. (Withdrawn) A method of forming an optical device, comprising

providing a plurality of high index layers;

providing a plurality of low index layers;

wherein said optical device is formed by creating alternating layers of said plurality of high index layers and said plurality of low index layers, such that electricity and heat is conducted through said optical device.

16. (Withdrawn) The method of claim 15 further comprising that the index difference between said a plurality of high index layers and said plurality of low index layers is greater than 0.3.

17. (Withdrawn) The method of claim 16, wherein the said plurality of high index layers are Indium Tin Oxides.

18. (Withdrawn) The method of claim 16, wherein said plurality of high index layers are doped diamonds.

19. (Withdrawn) The method of claim 16, wherein said plurality of low index layers are doped silicon.

20. (Withdrawn) The method of claim 16, wherein said plurality of low index layers possess wide band gaps.

21. (Withdrawn) The method of claim 20, wherein said wide band gaps ensure that the loss in said optical device will be due to scattering off carriers.

22. (Withdrawn) The method of claim 20, wherein said low index layers exhibit low absorption losses.

23. (Withdrawn) The method of claim 15, wherein said alternating layers form tunneling junctions between said plurality of high index layer and said low index layers.

24. (Withdrawn) The method of claim 16, wherein said plurality of high index layers result in large reflectivity over a wide frequency bandwidth.

25. (Withdrawn) The method of claim 15, wherein said optical device is fabricated by sputtering said alternating layers.

26. (Withdrawn) The method of claim 15, wherein said optical device is fabricated by bonding.

27. (Withdrawn) The method of claim 15, wherein said optical device is fabricated by utilizing smart cut technique.

28. (Withdrawn) The method of claim 15, wherein said optical device is fabricated by utilizing polishing technique.

29 (Previously Presented). A Fabry-Perot device comprising:

a plurality of high index layers comprising high index degenerately doped materials;

a plurality of low index layers comprising high thermal and electrically conductive materials;

a top mirror that includes alternating layers of said plurality of high index layers and said plurality of low index layers;

a cavity structure that includes a bulk of a selective material; and

a bottom mirror that includes alternating layers of said plurality of high index layers and said plurality of low index layers;

said high index layers and said low index layers having a relationship

$$E_{g,l} > E_{g,h} > {hc}/{\lambda}$$

where $E_{g,h}$ is the band gap of a high index material used in said high index layers, $E_{g,l}$ is the band gap of a low index material used in said low index layers, λ is wavelength of light of interest, h is Plank constant, and c is the speed of light so that said top mirror and bottom mirror allow electricity and heat to be conducted through said Fabry-Perot device, wherein the index difference between said plurality of high index layers and plurality of low index layers is greater than 0.3.

30. (Withdrawn) A process for forming an optical device, comprising:

providing a plurality of high index layers;

providing a plurality of low index layers;

wherein said optical device is formed by creating alternating layers of said plurality of high index layers and said plurality of low index layers, such that electricity and heat is conducted through said optical device.

31. (Withdrawn) The process of claim 30 further comprising that the index difference between said a plurality of high index layers and said plurality of low index layers is greater than 0.3.

32. (Withdrawn) The process of claim 31, wherein the said plurality of high index layers are Indium Tin Oxides.

33. (Withdrawn) The process of claim 31, wherein said plurality of high index layers are doped diamonds.

34. (Withdrawn) The process of claim 31, wherein said plurality of low index layers are doped silicon.

35. (Withdrawn) The process of claim 31, wherein said plurality of low index layers possess wide band gaps.

36. (Withdrawn) The process of claim 35, wherein said wide band gaps ensure that the loss in said optical device will be due to scattering off carriers.

37. (Withdrawn) The process of claim 35, wherein said low index layers exhibit low absorption losses.

38. (Withdrawn) The process of claim 30, wherein said alternating layers form tunneling junctions between said plurality of high index layer and said low index layers.

39. (Withdrawn) The process of claim 31, wherein said plurality of high index layers result in large reflectivity over a wide frequency bandwidth.

40. (Withdrawn) The process of claim 30, wherein said optical device is fabricated by sputtering said alternating layers.

41. (Withdrawn) The process of claim 30, wherein said optical device is fabricated by bonding.

42. (Withdrawn) The process of claim 30, wherein said optical device is fabricated by utilizing smart cut technique.

43. (Withdrawn) The process of claim 30, wherein said optical device is fabricated by utilizing polishing technique.

44. (Withdrawn) A method of forming a Fabry-Perot device comprising:

providing a plurality of high index layers;

providing a plurality of low index layers;

forming a top mirror that includes alternating layers of said plurality of high index layers and said plurality of low index layers;

forming a cavity structure that includes a bulk of a selective material; and

forming a bottom mirror that includes alternating layers of said plurality of high index layers and said plurality of low index layers;

wherein said top mirror and bottom mirror allow electricity and heat to be conducted through said Fabry-Perot device.